

Report Documentation Page				Form Approved OMB No. 0704-0188	
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1. REPORT DATE 30 SEP 1997		2. REPORT TYPE		3. DATES COVERED 00-00-1997 to 00-00-1997	
4. TITLE AND SUBTITLE Annual Report on FY97 ONR Sponsored Research: ONR DURIP Annual Report				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) University of California, San Diego, Scripps Institution of Oceanography, La Jolla, CA, 92093				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 2	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

ANNUAL REPORT ON FY97 ONR SPONSORED RESEARCH

ONR DURIP ANNUAL REPORT

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Award #N00014-97-1-0423

Long Term Goal

To conceive, develop and deploy instrument systems appropriate for specific scientific and Naval tasks.

Approach

Recent efforts have explored application of acoustic remote sensing techniques, including multi-beam, side-scan and phased array Doppler sonars. These have been applied for the measurement of surface waves, nearshore currents and rips, internal waves, and large scale currents.

Tasks Completed

The phased array sector-scan sonars initially developed for Arctic and offshore work have been significantly upgraded. They have been modified to operate remotely, at the end of a cable up to 1 km long, and the data throughput has been upgraded to 20 m bytes/s, a factor of 60 improvement over the first generation system. Test equipment provided by this DURIP was instrumental in enabling this advance.

Results

Two sector scan sonars have been operating at DUCK, N.C., in support of the DUCK'97 Experiment. Dr. Jerome Smith of Scripps has obtained valuable data on shoaling waves and nearshore currents.

Impact

Dr. Smith has obtained a landmark set of observations including calm, storm and hurricane induced swell conditions. The ability to observe the inner shelf routinely during rough, as well as calm conditions is a breakthrough that could change the conduct of future research and monitoring programs. Test equipment provided by this DURIP were instrumental in developing this capability.

Relationship to Other Programs

The test equipment purchased so far has already had a significant impact on Dr. Smith's participation in Sandy DUCK, as well as group participation in the NSF Arctic program, SHEBA.